



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/637,660

08/11/2003

Shinichi Takahashi

50195-519

4069

20277 7590 10/08/2008
MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

CHU, HELEN OK

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

10/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/637,660	Applicant(s) TAKAHASHI, SHINICHI	
	Examiner Helen O. Chu	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-31 is/are pending in the application.
- 4a) Of the above claim(s) 7-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's Amendments have been received on August 20, 2008. Claims 1, 5 and 6 have been amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 20, 2008 has been entered.

Claim Rejections - 35 USC § 112

4. The rejections under 35 U.S.C. 112, second paragraph, on claims 1, 3-6 are withdrawn because the Applicants amended the claims.

Claim Rejections - 35 USC § 103

5. The rejections under 35 U.S.C 103(a), as unpatentable over Levy et al. in view of Ito et al. on claims 1,3-6 are withdrawn because the Applicants amended the claims
6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US Patent 6,926,982).

In regard to claims 1, 3-6, the Ito reference discloses a fuel cell system a plurality of fuel cell stacks comprising a fuel cell and an electrolysis cell (Applicants unit cell). The electrolysis cell includes a proton exchange membrane, catalyst on both sides the electrolyte, diffusion layer on the outer sides of the catalyst (Applicants electrodes) and a pair of end plates (Fig. 1,1). The fuel cell anode is connected to the anode of the electrolysis cell and the fuel cell cathode is connected to the cathode of the electrolysis cell. Though the Ito et al. reference does not recite a battery connected to the fuel cell stack in a parallel fashion, however, the Ito reference discloses the fuel cell circulate electrons which have been exchanged during water formation reaction process through an external circuit, thus acting as a battery (1:45-52). Therefore, since the Ito et al. reference discloses multiple unit cells within the fuel cell stack, and a fuel cell can circulate electrons through an external circuit can function as a battery, it would have been obvious to one of ordinary skill in the art to at least substitute the fuel cell portion with an external load in parallel connection with the electrolysis cell, of one unit cell, for a battery. The fuel cell in combination with the external circuit (Fig. 1 lower component) serves as electron storage medium which functions the same as a battery. The substitution of known equivalent structures involves only ordinary skill in the art. *In re*

Fout 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

When a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result. **KSR v. Teleflex**. A patent for a combination, which only unites old elements with no change in their respective functions, obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men. Where the combination of old elements performed a useful function, but it added nothing to the nature and quality of the subject matter already patented, the patent failed under §103. When a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious. **KSR v. Teleflex**

In addition to, the Ito et al. reference discloses that the power generation and electrolysis regeneration do not occur simultaneously (Applicant's program controller 8:10-15).

It is noted that claims 1, 5 and 6 have "intended use" language and it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Response to Arguments

Applicant's arguments filed February 7, 2008 received been fully considered but they are not persuasive.

Applicants' principal arguments are:

A) The Applicant's argue, " *The fuel cell system of the present invention does not have alternately stacked hydrolysis and fuel cell units, as in Levy et al., and does not comprise separate hydrolysis portions and fuel cell portions, as in Ito et al.*"

However, the Examiner is interpreted the term unit cell broadly which includes a fuel cell and an electrolysis portion as part of the unit cell. The unit cells are stacked and therefore would be adjacent to one another.

B) The Applicants argue in Arguments and Remarks dated 7/23/2007 ,"
Additionally, the Office Action, at page 4, appears to assert that the fuel cell of Ito acts as a battery. However, in Ito, power generation and electrolysis do not occur simultaneously, see column 8, lines 12-15. Therefore, the fuel cell cannot act as a battery for supplying electricity when water electrolysis is. Thus, Ito does not disclose "a battery connected to the fuel cell stack in a parallel connection" as required by claim 1."

These arguments were addressed in the office Action dated 11/7/2007, the Examiner would like to further clarify these arguments. The fuel cell and the external load acts an electron storage medium, hence have battery functions. As described in Fig. 5 and Column 1, lines 45-50, during powering generation the fuel cell release electrons and

Art Unit: 1795

stored in the external circuit as disclosed as illustrated in Fig. 5 and during regeneration the external circuit releases the electron into the unit cell.

C) the Applicants arguments concerning Levy et al. have been considered but are moot in view of Applicants amendments.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-12922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOC

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795